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humanitarianism that prompted such men as Schleyer and Zamenhof.

If such motives prompt the thousands that now advocate one or another universal language they might consistently giv English a fair chance to sho whether it iz by its nature fitted to become the *Weltsprache*. Perhaps we hav at hand already a mature language that iz potentially universal, but that iz hinderd from becoming so by its present spelling. It iz already the most widespred, it iz spoken by the greatest number of people, it haz the grandest literature. The fetters of antiquarian spelling can be broken and the language set free. That honest world-filologist, Jacob Grimm, wrote: "The antiquated orthography of English stands in the way of its becoming the universal language." Those interested in universal languages should investigate the natural claims of English to universality.

To that end it iz wel to look into the claims of the spelling-reformers: that it wil enable the child to read and write a year quicker and not impair its reasoning powers for life, as the illogical spelling now may do; that for the foreigner, particularly for the foreign child, there wil be even a greater gain. The thinkers that favord spelling reform should be considerd: Noah Webster, Ellis, Gladstone, Sweet, Skeat, Max Mueller, W. D. Whitney and William James, not to mention the living advocates of it.

It iz appropriat for those that honestly and unselfishly desire a universal language, to help in unfettering English that it may advance and assume, if by natural selection it iz suited for it, the role of *Weltsprache*. I recommend to all, as a first step, the omitting, in personal correspondence, of superfluus letters in words where the meaning iz unmistakable.

ALBON P. MAN, JR.

CHARLOTTSVILLE, VIRGINIA.

CURRENT PERIODICALS.

In the number of *Scientia* for September, 1915, Giuseppe Peano writes on the function of symbolism in arithmetic, algebra, the geometry of vectors, and logic, as a sequel to what Rignano wrote in the preceding volume of *Scientia*. Th. Svedberg writes a very interesting though somewhat technical article on the structure and form of molecules, in which the starting point is that, in the study of gases and liquids, the concept of molecule is most fruitful and of its reality we have convincing proofs. E. H. Starling writes on "The Animal Machine and its Automatic Regulation," in which again is emphasized that, weight for weight, no man-made machine can be compared in efficiency with the numberless mechanical engines met with throughout the animal kingdom. There are two articles on aspects of nationality: A. Meillet writes on languages and nationalities; and Roberto Michels writes on the occasional lack of relationship between real and acquired nationality. Camillo Acqua gives a general review of our knowledge of the respiratory process in plants; and there are book reviews and French translations of the articles written in Italian and English.

In *Scientia* for October, 1915, Aldo Mieli maintains that, in spite of the very different views as to the nature of Greek science which are held by men of different branches of science, there is a unity in the scientific character of the ancient world, in virtue of which the development of the various sciences is due, not to the mentality of those who cultivated them, but to the special characteristics of the subject treated. P. Puiseux writes on the future of the planets, and points out that the tendency of the sun is not to contract and die out but to dilate and dissolve away. The concluding sentence is worth quoting: "The intelligence which exerts itself to view possible catastrophes with calmness is a better prop for a moral life than passive enjoyment of the present course of things." C. Lloyd Morgan has a very able and systematic discussion of the various views of "Mind and Body in their Relations to Each Other and to External Things." The only article concerned with the present problems of nations is one by Ramsay Muir of Manchester on "The Antipathy Between Germany and England." There are also reviews of books and other periodicals, and French translations of the articles in Italian and English.

In *Scientia* for November, 1915, A. S. Eddington writes on the stellar universe as a dynamical system. In the solar system dynamics has of course been successfully applied for a long time, but for the outside stellar system the study of dynamics has found but little application as yet. Charles Fabry gives the first part of an article on luminous atoms and their motions. Mario Vallauri writes on Indian medicine: medical doctrines were the consequence, in India as elsewhere, of religious theories, and the history of medicine among the Hindus is here traced from the Vedic age downward.

The only article touching on the national questions of the present is one by P. Bonfante of the University of Pavia on a possible future European confederation. Besides these articles there are reviews of books and periodicals, a chronicle, and French translations of the articles written in English and Italian.

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In *Science Progress* for October, 1915, Dr. C. G. Knott gives an interesting account of the proceedings at the Napier Tercentenary held at Edinburgh in 1914 to celebrate the three-hundredth anniversary of the first publication of logarithms, and suggests that a fitting outcome of the Tercentenary would be a photographic reproduction of the manuscript volumes containing calculations of logarithms to fifteen places by the late Edward Sang. Walter Stott gives a most convincing appeal for more systematic work in the making accessible of the results of mathematical science by the thorough study of history. This appeal shows us that the value of a great part of the work of the Open Court Publishing Company will be appreciated by men of science. Some passages of Stott's article are worth quoting. "One hundred years after the publication of Laplace's *Essai philosophique sur les probabilités,* it has been translated into English by the Americans, and Lagrange's great work, the *Mécanique analytique,* which Hamilton called a scientific poem, has never been printed in English."...."Who would think of looking for valuable mathematical problems and theorems in papers bearing such titles as *The Ladies' Diary, The Gentleman's Diary, The British Diary, The Leeds Correspondent, The Northumbrian Mirror, The Liverpool Student, The Miscellanea Curiosa,* and numerous others with titles giving no index to the contents? And yet, if the history of mathematics is to be written, it is among such papers that we must search. What mathematician would think of looking into a work bearing the strange device *Instruction Given in the Drawing School Established by the Dublin Society*? And yet this book, written by Joseph Fenn (a name almost forgotten in mathematics), gives the first example of the use in the British Isles of the notation of Leibniz for the differential and integral calculus," and a discussion of the complex variable. "One of our most pressing needs is a set of works dealing with the history of special branches. Complete histories of the complex variable, of the theory of groups, of the solution of algebraic equations, of finite difference equations, and of interpolation, of the imaginary exponents in differentiation, and of integral equations, are a few of the desiderata." A great part of the paper is concerned with the work of a little-known mathematician, Michael Dary, a contemporary of Newton, and the re-discovery of an important method of his for the solution of equations by the process of "iteration." This process was re-discovered in quite modern times by the editor of *Science Progress,* Sir Ronald Ross, who gives the first part of a full description of his method, which is of great interest and importance in that part of modern mathematics where operations and functional equations are dealt with. Dr. F. A. Mason contributes the first part of an article on "The Influence of Research on the Development of the Coal-Tar Dye Industry." "It is said that the coal-tar dye industry began in 1856 with the discovery of mauve by the late Sir W. H. Perkin. Nevertheless the real foundations of this industry were laid some thirty years previously in the discovery of benzene by Michael Faraday at the Royal Institution in 1825." Between 1825 and 1856 a great deal of valuable pioneer work was done upon the investigation of coal-tar, and, after a short account of the position of organic chemistry in those days, Mason deals with the period from 1856 to 1867, when a number of new dyes were discovered by Perkin and others. In 1856 Perkin, at the age of eighteen, left the Royal College of Chemistry, where he was a research pupil of Hofmann, and started in co-operation with his father and brother a small factory at Greenford Green near Harrow. "In 1863 twenty patents were taken out in Great Britain for synthetic dye-stuffs by British firms (which is incidentally the maximum number taken out by British firms in any year up to date, the next highest number being fifteen in 1901), and by 1865 the British dye industry had reached the zenith of its existence." Hofmann prepared a new violet dye and worked chiefly at the purely scientific side of the matter in London, while Heinrich Caro, Griess, Schunck and others worked on the technical side in Manchester. However from 1865 to 1868 the activity of the preparation of new dyes diminished in England after the return of Hofmann to Germany to carry on his important investigations on coal-tar derivatives. In the second period of 1868 to 1884 the synthesis of alizarine was discovered by Graebe and Liebermann in Berlin, and was patented in 1868, and from this dated the beginnings of azodyes which form the largest class of dye-stuffs known to-day. "It was at first supposed that azo dyes could only be obtained in yellows or oranges, but Caro's discovery of 'fast red' in 1879 effectually disposed of these imaginary limitations, and from that date onwards every year saw the production of new azo-dyes of all shades and colors; one dye in particular deserves notice, namely Biebrich scarlet, discovered by Nietzki in 1879 as being the first representative of the sub-class known as disazo dyes, which have since grown to be of very great importance." Prof. F. Womack gives a classification and discussion of instrumental aids for deafness. The number concludes with essay-reviews; accounts of recent advances in science: mathematics, astronomy, physics, chemistry, geology, botany, zoology and anthropology; and notes, correspondence, and reviews of books. Φ

BOOK REVIEWS AND NOTES.

THE FIRST GRAMMAR OF THE LANGUAGE SPOKEN BY THE BONTOC IGOROT. With a Vocabulary, Texts, etc. By *Carl Wilhelm Seidenadel.* Chicago: The Open Court Pub. Co., 1909. Price, $5.00 net.

This sumptuous volume bears *prima facie* evidence of devotion and affection. The author is evidently in love with his subject, and the contributors who made the publication possible must have caught something of his enthusiasm, to send forth his work, gowned in silk and gold, with gilt top, printed at least in part with specially-cast type, its typography and illustrations superb, and its dimensions reminding one of the Family Bible which posed on the center-table of most New England houses of the past generation.

One pauses to wonder, Why all this sumptuousness? Certainly there is no eager race in and around Bontok to learn the local dialect. One can count on one hand the number of white people who have made any serious effort at all to do this, including Dr. Seidenadel, and still have fingers left. But doubtless there is a circle, of which not the center, and hardly the circumference, touches Bontok, of those whose interest in the subject is nevertheless real; we mean the scholars of the "MP" (Malayo-Polynesian) languages. Here is a field just opening more widely, and here is a scattered group of specialists that must be duly impressed and edified. There is a specific gravity in tomes, and we predict that this luxurious volume will take high rank as a heavyweight.

And this not only as to appearance, but also as to contents. May I be pardoned for suggesting incidentally, just here, that, for gaining this prestige, the rather general discrediting of every effort which others have made in the same field was hardly necessary or effective, and that the innuendoes indulged in seem somewhat petty and ungenerous. The impression of accurate, painstaking scholarship loses rather than gains by their presence in the prefatory pages of the various parts of the book.

Otherwise the work is full of merit. One wonders that so much could be accomplished when he considers the method and circumscribing conditions.